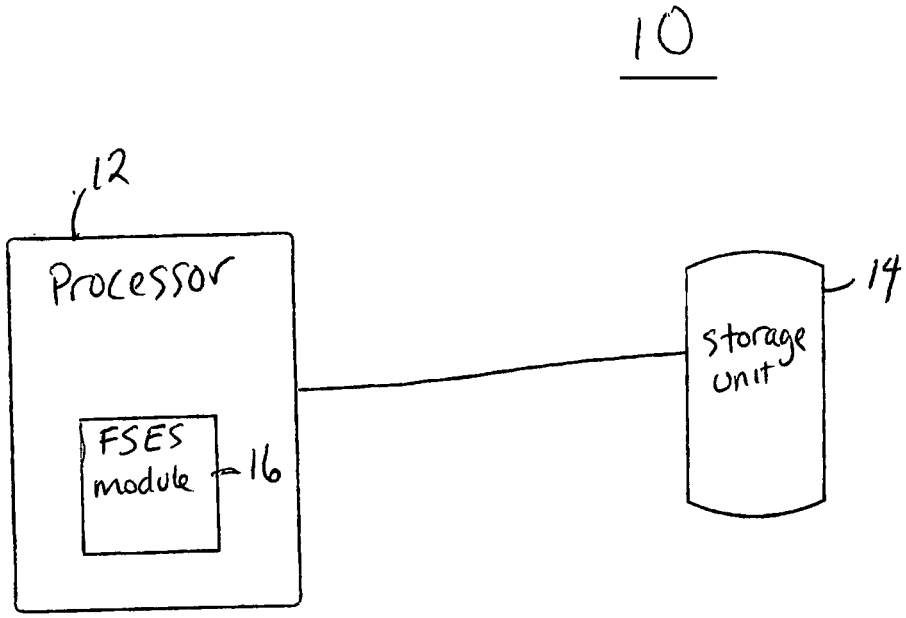


FIG. 1

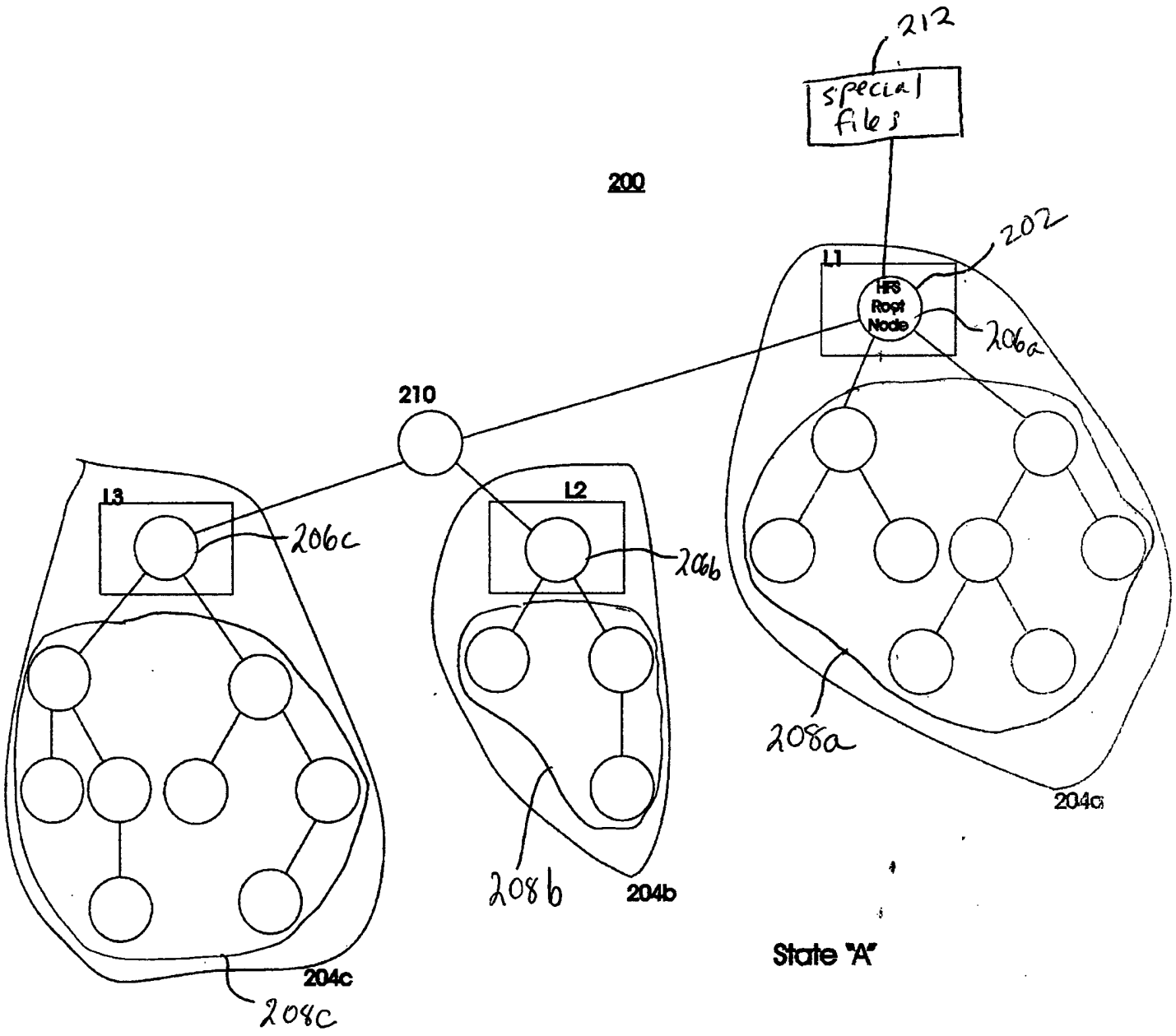

212
special files
200
202
L1
HFS Root Node
206a
210
L3
206c
L2
206b
208a
204a
208b
204b
204c
208c
State "A"

Fig 2A

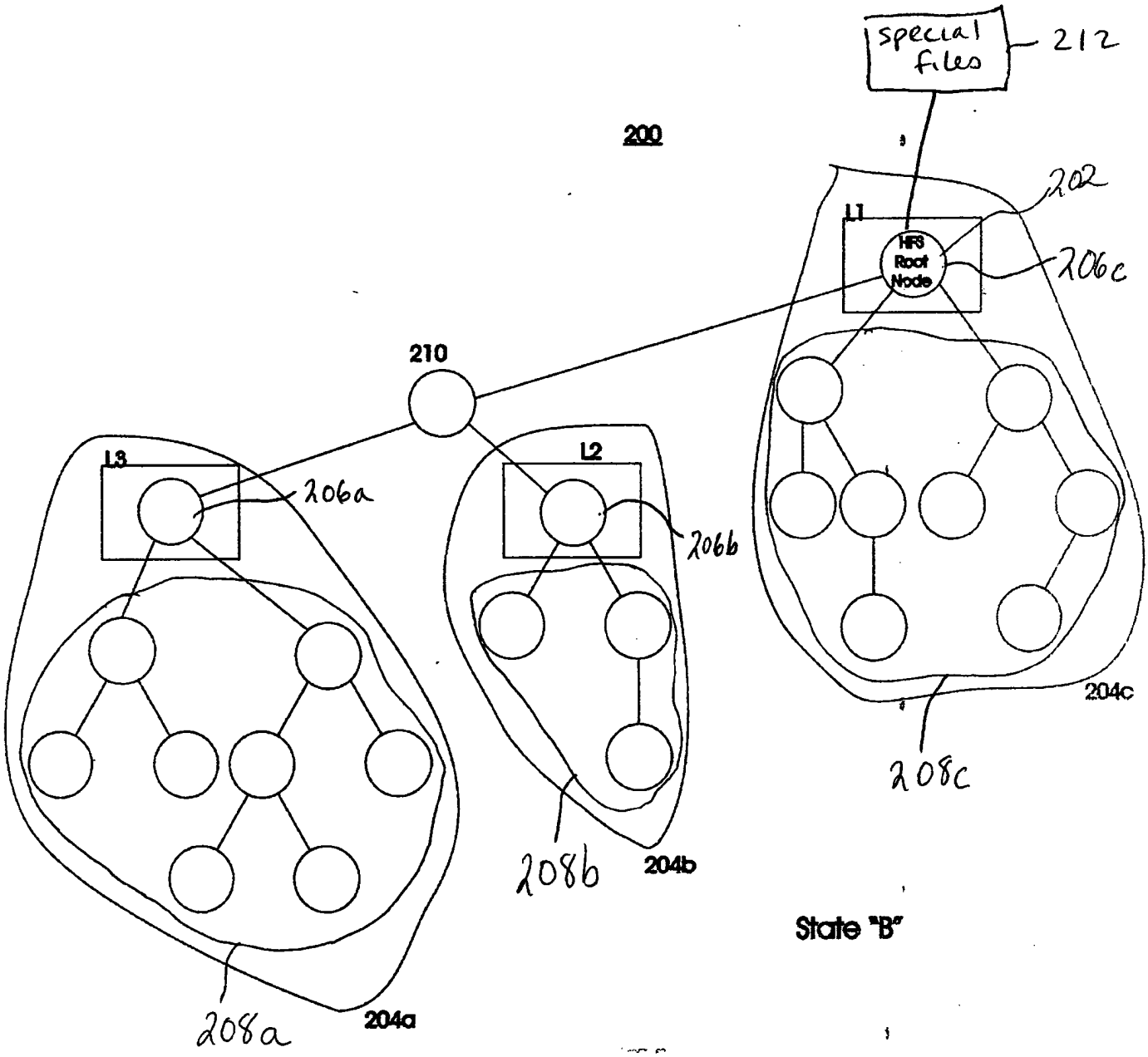

special files
212
200
202
L1
HFS Root Node
206c
210
L3
206a
L2
206b
204c
208c
208b
204b
State "B"
208a
204a

Fig 2B

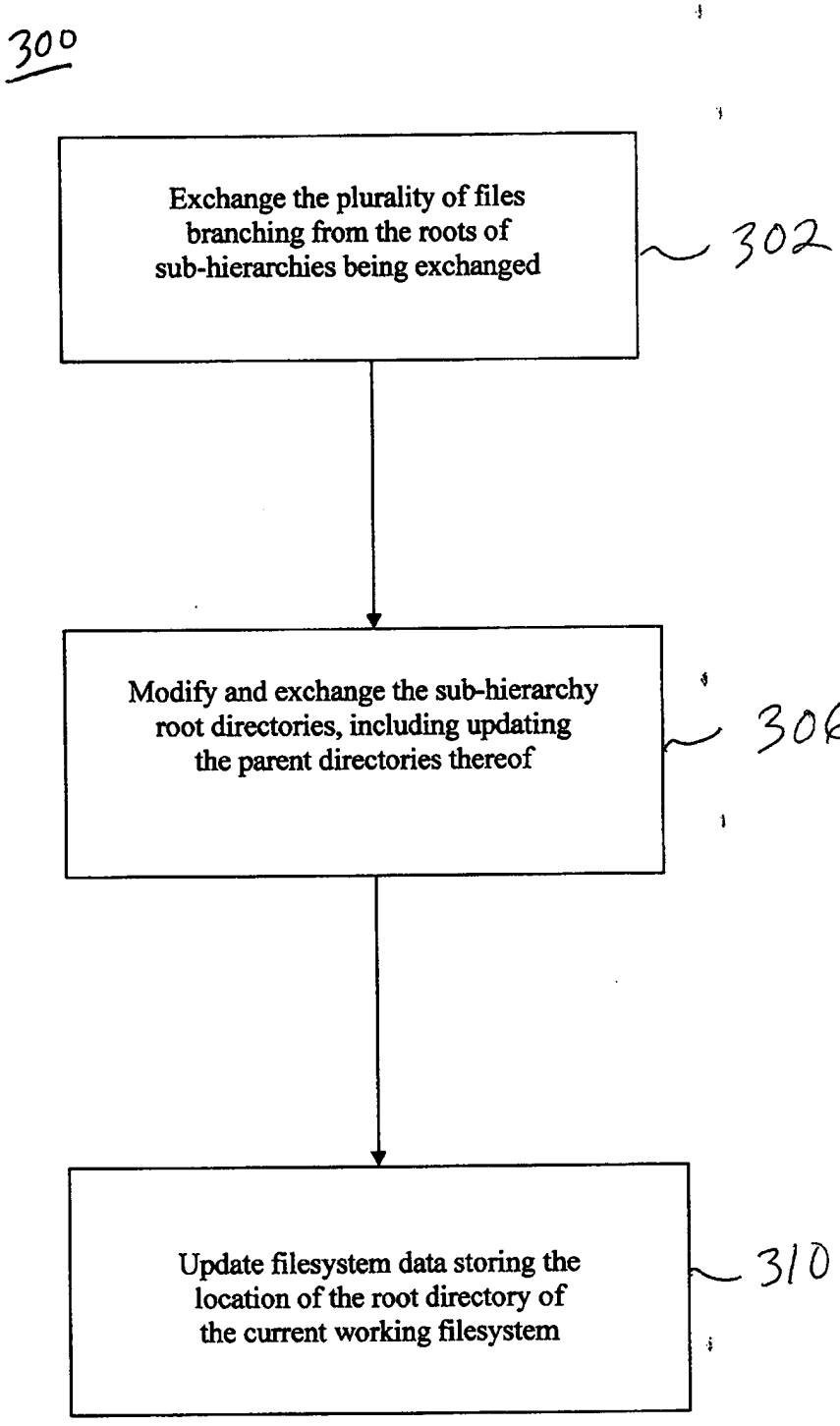

300
Exchange the plurality of files branching from the roots of sub-hierarchies being exchanged
302
Modify and exchange the sub-hierarchy root directories, including updating the parent directories thereof
306
Update filesystem data storing the location of the root directory of the current working filesystem
310

FIG. 3

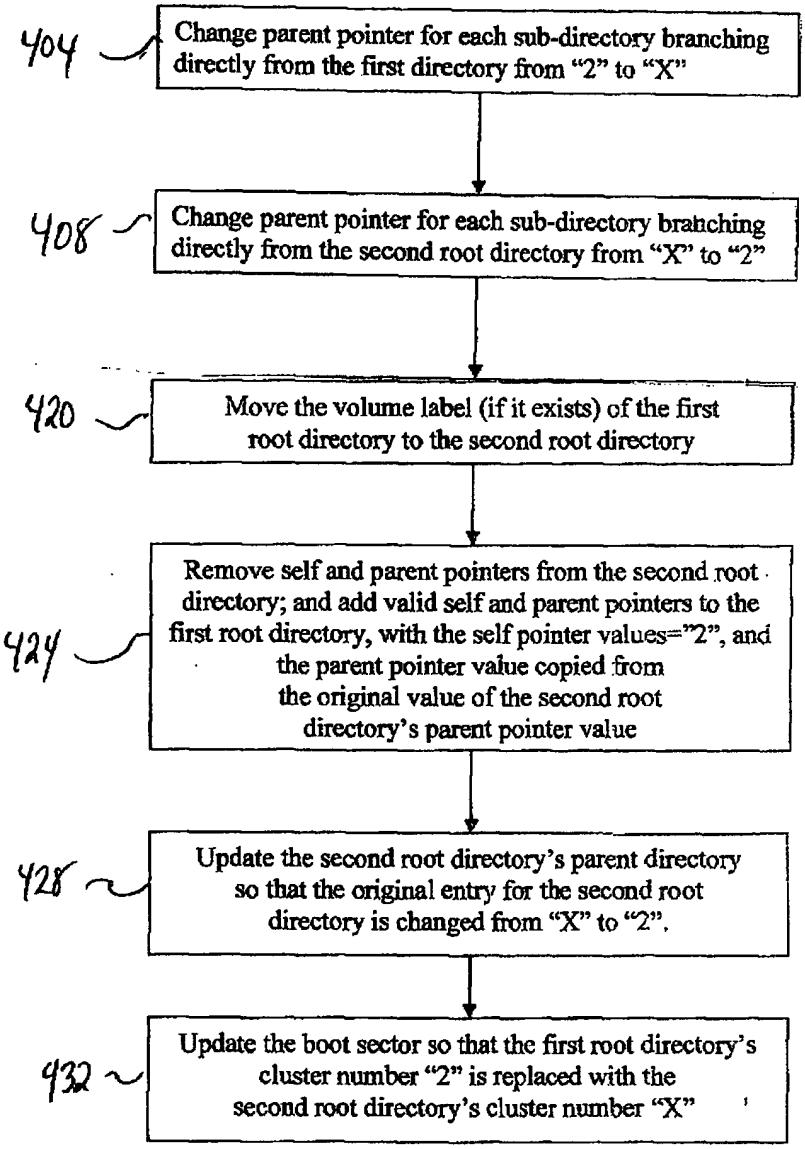
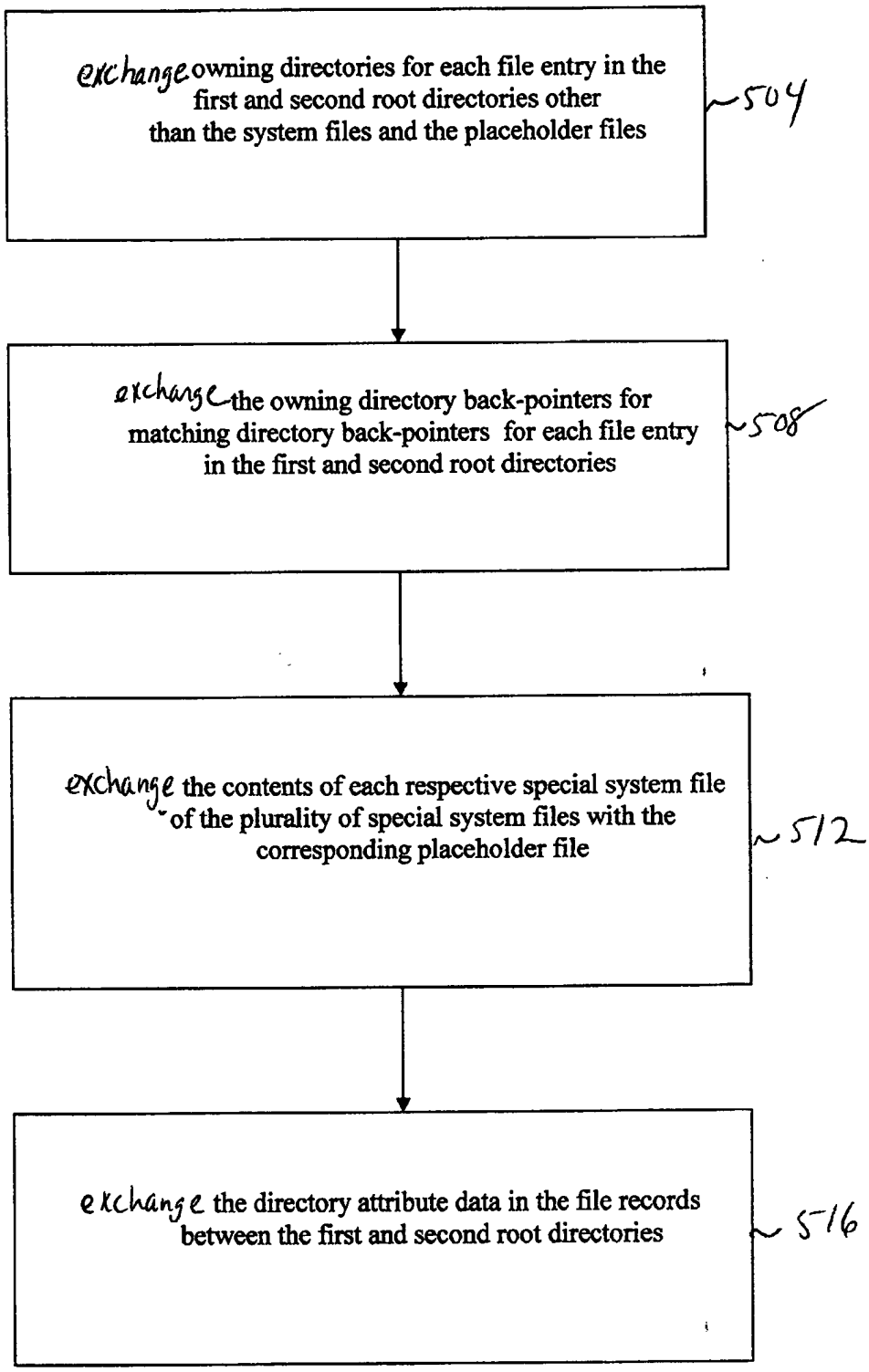

404
Change parent pointer for each sub-directory branching directly from the first directory from "2" to "X"
408
Change parent pointer for each sub-directory branching directly from the second root directory from "X" to "2"
420
Move the volume label (if it exists) of the first root directory to the second root directory
424
Remove self and parent pointers from the second root directory; and add valid self and parent pointers to the first root directory, with the self pointer values="2", and the parent pointer value copied from the original value of the second root directory's parent pointer value
428
Update the second root directory's parent directory so that the original entry for the second root directory is changed from "X" to "2".
432
Update the boot sector so that the first root directory's cluster number "2" is replaced with the second root directory's cluster number "X"

FIG. 4

FIG. 5


exchange owning directories for each file entry in the first and second root directories other than the system files and the placeholder files
504
exchange the owning directory back-pointers for matching directory back-pointers for each file entry in the first and second root directories
508
exchange the contents of each respective special system file of the plurality of special system files with the corresponding placeholder file
512
exchange the directory attribute data in the file records between the first and second root directories
516